

SYSTEM AND METHOD FOR PRESENTING MUSIC TO CONSUMERS

5

REHAN M. KHAN

MARC M. MATHYS

CHRISTIAN D. PIRKNER

THOMAS R. SULZER

10

CROSS REFERENCE TO RELATED APPLICATIONS

The present Application is related to the U.S. patent application Serial No 09/533,045, entitled "METHOD FOR CREATING A DATABASE FOR COMPARING MUSIC ATTRIBUTES", Attorney Docket Number M-8292 US, filed on March 22, 2000, assigned to the Assignee of the present invention, and is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

The present invention relates to business methods for presenting music to consumers that allows content based music searching.

BACKGROUND

20

Conventional retail stores ("brick and mortar" stores) present music to consumers inefficiently. When a consumer goes to a retail store to purchase music, for example, "Blockbuster"™ (Registered Trademark), the consumer has limited number of choices to search for music. One reason for the limited number of choices is that conventionally music is classified only in restricted number of classes, for example, music may be stored at a retail store under the name of the artist, genre (Rock, blues, Jazz etc.), label, and title of the album etc.

25

Conventional retailers do not have a mechanism that allows consumers to search for music based upon music content.

The advent and popularity of the Internet has created numerous opportunities for retailers to conduct business in the electronic arena ("E-commerce"). Today, E-commerce is a viable
5 business option and music can easily be sold via the Internet.

The Internet connects thousands of computers world wide into a vast network using well-known protocols, for example, Transmission Control Protocol (TCP)/Internet Protocol (IP). Information on the Internet is stored world wide as computer files, mostly written in the Hypertext Mark Up Language ("HTML"). The collection of all such publicly available
10 computer files is known as the World Wide Web (WWW).

The WWW is a multimedia-enabled hypertext system used for navigating the Internet and is made up of hundreds of thousands of web pages with audio, images, text and video files. Each web page can have connections to other pages, which may be located on any computer connected to the Internet.

15 A typical Internet user uses a client program called a "Web Browser" to connect to the Internet. A user can connect to the Internet via a proprietary network, such as America Online or CompuServe, or via an Internet Service Provider, e.g., Earthlink. A Web Browser may run on any computer connected to the Internet. Currently, various browsers are available of which two prominent browsers are Netscape Navigator and Microsoft Internet Explorer. The Web Browser
20 receives and sends requests to a web server and acquires information from the WWW. A web server is a program that, upon receipt of a request, sends the requested data to the requesting user.

A standard naming convention known as Uniform Resource Locator ("URL") has been adopted to represent hypermedia links and links to network services. Most files or services can

be represented with a URL. URLs enable Web Browsers to go directly to any file held on any WWW server.

Information from the WWW is accessed using well-known protocols, including the Hypertext Transport Protocol ("HTTP"), the Wide Area Information Service ("WAIS") and the File Transport Protocol ("FTP"), over TCP/IP protocol. The transfer format for standard WWW pages is Hypertext Transfer Protocol (HTTP).

The advent and progress of the Internet has changed the way consumers buy or listen to music. Consumers today can download digital music via the Internet using MPEG 3 technology, with a click of a mouse. Audio delivery techniques have also made it easy to stream audio from a website to a consumer, upon demand. A typical music listener can download audio files from the WWW, store the audio files, and listen to music.

Although the progress in Web technology allows consumers to download music easily, a consumer buying music on line is still limited by the same constraints facing a consumer who buys music at a brick and mortar store i.e., limited number of search techniques for searching music and lack of content based music search techniques. Therefore, commercial retail music environment whether electronic or brick and mortar, suffer from the same drawbacks.

Hence what is needed is a business method that will efficiently present music to a consumer based upon consumers' preferences and allow consumers to search for music based upon music content.

SUMMARY

The present invention solves the foregoing drawbacks by providing a method and system for efficiently presenting music to consumers that allows content based music searching. In one aspect, the invention provides a computer-implemented method of providing user requested music. The method comprises of receiving user input that defines a plurality of music search parameters. Some of the music search parameters may describe music content attributes.

Thereafter, the process searches for music samples based upon the user provided search parameters. The process then presents music samples to the user. The method also determines if the user wants to buy any of the presented music samples, a set of music samples similar to the music purchased and/or a set of music samples different than the music bought.

5 In yet another aspect, the present invention provides a computer system for providing user requested music. The system includes an input module for receiving user-defined parameters for searching music; and a search module for searching music based upon the user defined parameters.

One advantage of the present invention is that, a retail store, brick and mortar or On-line,
10 can provide a tool to consumers for efficiently searching for music based upon music content.

This brief summary has been provided so that the nature of the invention may be understood quickly. A more complete understanding of the invention can be obtained by reference to the following detailed description of the preferred embodiments thereof in connection with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a computing system to carry out the inventive technique.

Figure 2 is a block diagram of the architecture of the computing system of Fig. 1.

Figure 3 is a block diagram of the Internet Topology.

20 Figure 4A is a block diagram of the architecture of the present system.

Figure 4B is a flow diagram of process steps for efficiently presenting music to consumers, based upon consumer preferences and content based music searching techniques.

Figure 4C1 is a flow diagram for acquiring user input.

Figure 4C2 is a flow diagram for acquiring user input.

25 Figure 4C3 is a flow diagram for acquiring user input.

Figure 5A is a flow diagram of process steps for tracking user purchases via a user interface.

Figure 5B is a flow diagram of process steps for tracking user purchases with user queries.

5 The use of similar reference numerals in different figures indicates similar or identical items.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 is a block diagram of a computing system for executing computer executable process steps, according to one aspect of the present invention. Figure 1 includes a host
10 computer 10 and a monitor 11. Monitor 11 may be a CRT type, a LCD type, or any other type of color or monochrome display device. Also provided with computer 10 is a keyboard 13 for entering text data and user commands, and a pointing device 14 for processing objects displayed on monitor 11.

Computer 10 includes a computer-readable memory medium such as a rotating disk 15
15 for storing readable data. Besides other programs, disk 15 can store application programs including web browsers by which computer 10 connects to the Internet, audio files and the systems according to the present invention, as described below.

Computer 10 can also access a computer-readable floppy disk storing data files,
application program files, and computer executable process steps embodying the present
20 invention or the like via a floppy disk drive 16. A CD-ROM interface (not shown) may also be provided with computer 10 to access application program files, audio files and data files stored on a CD-ROM.

A modem, an integrated services digital network (ISDN) connection, or the like also
provides computer 10 with an Internet connection 12 to the World Wide Web (WWW). The
25 Internet connection 12 allows computer 10 to download data files, audio files, application

program files and computer-executable process steps embodying the present invention.

Computer 10 is also provided with external audio speakers 17A and 17B to assist a listener to listen to music either on-line, downloaded from the Internet or off-line using a CD (not shown).

It is noteworthy that a listener may use headphones instead of audio speakers 17A and 17B to

listen to music.

Figure 2 is a block diagram showing the internal functional architecture of computer 10.

Computer 10 includes a CPU 201 for executing computer-executable process steps and interfaces with a computer bus 208. Also shown in Figure 2 are a WWW interface 202, a display device interface 203, a keyboard interface 204, a pointing device interface 205, an audio interface 209, and a rotating disk 15. Audio Interface 209 allows a listener to listen to music, On-line (downloaded using the Internet or a private network) or off-line (using a CD, not shown)).

As described above, disk 15 stores operating system program files, application program files, web browsers, and other files. Some of these files are stored on disk 15 using an installation program. For example, CPU 201 executes computer-executable process steps of an installation program so that CPU 201 can properly execute application programs.

A random access main memory ("RAM") 206 also interfaces to computer bus 208 to provide CPU 201 with access to memory storage. When executing stored computer-executable process steps from disk 15 (or other storage media such as floppy disk 16 or WWW connection 12), CPU 201 stores and executes the process steps out of RAM 206.

Read only memory ("ROM") 207 is provided to store invariant instruction sequences such as start-up instruction sequences or basic input/output operating system (BIOS) sequences for operation of keyboard 13.

The present invention is not limited to the computer architecture described above. Systems comparable to Computer 10, for example, Portable devices like the Palm Pilot, a

registered trademark, that can be connected to the Internet may also be used to implement the present inventive techniques.

Figure 3 shows a typical topology of a computer network with computers similar to computer 10, connected to the Internet. For illustration purposes, three computers X, Y and Z are shown connected to the Internet 302 via Web interface 202, through gateway 301, where gateway 301 can interface numerous computers. Web interface 202 may be a modem, network interface card or a unit for providing connectivity to other computer systems over a network using protocols such as X.25, Ethernet or TCP/IP, or to any device that allows direct or indirect computer-to-computer communications.

It is noteworthy that the invention is not limited to a particular number of computers. Any number of computers that can be connected to the Internet 302 or to any other computer network may be used to implement the present inventive techniques.

Figure 3 further also shows a second gateway 303 that connects a network of web servers 304 and 305 to the Internet 302. Web servers 304 and 305 may be connected with each other over a computer network. Web servers 304 and 305 can provide content including music samples and audio clips to a user from database 306 and/or 307. Web servers 304 and 305 can also host the system according to the present invention. Also shown in Figure 3 is a client side web server 308 that can be provided by an Internet service provider.

Figure 4A is a block diagram of the system architecture that efficiently presents music samples to a consumer based upon consumer preferences. A User Interface (UI) 400 is an interactive graphical interface that allows a user to input search parameters that may describe music content attributes. UI 400 may be presented to a user on display device 11. One such UI 400 is described in U.S. Patent Application, Serial No. 09/533,045, Attorney Docket No. M-8292 US, entitled, "METHOD FOR CREATING A DATABASE FOR COMPARING MUSIC ATTRIBUTES", filed March 22, 2000, assigned to the common assignee herein, and

incorporated herein in its entirety. The present invention is not limited to the layout of UI 400 as described in the aforementioned U.S. Patent application. Various modifications could be made to UI 400.

A consumer can input a search request in UI 400 defining search parameters that may define music attributes. An example of one such search request may be "Search for Music, that is "Sad", is a crossover between "Blues and Rock", "with a lead male vocalist, with the saxophone being the most prominent instrument and released in the last ten years". Based upon the above request "Sad, Blues/Jazz, male vocalist, saxophone and last ten years" become search parameters. As can be seen from the search parameters, "Sad", crossover between Blues/Jazz, male vocalist and saxophone describe music content. The search parameters define certain feature vectors that are used for searching music.

Various feature vectors and the process for determining feature vectors is described in U.S. Patent Application, Serial No. 09/533,045, Attorney Docket No. M-8292 US, entitled, "METHOD FOR CREATING A DATABASE FOR COMPARING MUSIC ATTRIBUTES", filed March 22, 2000, assigned to the common assignee herein and incorporated herein in its entirety.

User defined search parameters are sent to a MQL interface 401 that parses the search request and designs a search query. The search query is sent to a central database 402. One such database is described in U.S. Patent Application, Serial No. 09/533,045, Attorney docket No. M-8292 US, entitled, "METHOD FOR CREATING A DATABASE FOR COMPARING MUSIC ATTRIBUTES", filed March 22, 2000, assigned to the present assignee and incorporated herein in its entirety. Based upon the search query, a list of music samples is provided to the consumer.

Figure 4B is a flow diagram of process steps for providing music samples to a consumer who defines music search parameters.

In step S401, a consumer is provided with UI 400. The consumer may be provided UI 400 on computing system 10. UI 400 may be provided to a consumer who shops at a brick and mortar retail store, for example at "Blockbuster[®]", or to a consumer shopping on line via the Internet while the consumer is visiting an on line retail store, for example, Amazon.com[®] (Registered Trademark) or CDNOW[™] (Registered Trademark). A UI similar to UI 400 may be also provided to a consumer on a CD-ROM that also has audio samples.

In step S402, the consumer inputs search parameters. An example of one such consumer request may be to "search for music that is a "cross over between "Blues" and "Jazz", has a male vocalist, with a saxophone as a prominent instrument and the music is "Sad". The consumer inputs the search parameters in UI 400. An example of UI 400 is provided in Figure 4C1, 4C2, and 4C3. Besides inputting search parameters, the consumer may be asked to input consumer information to create a consumer profile. Such information may include, but is not limited to, consumer, name, address, phone number, electronic mail address, credit card number, other consumer preferences, choices, and tastes etc. Consumer profile information collected via UI 400 may be used to associate consumer likes and dislikes based upon the music purchased, the music sampled and/or music that is not purchased. Consumer defined search parameters may be stored and linked with consumer's identity. For example, after consumer's email and other information is acquired, consumer may be given a unique identification number. Consumers address may also be given the choice to pick a user identity. Consumer's email addresses may be used for identification.

In step S403, MQL interface 401 receives the consumer defined search parameters. Thereafter, MQL interface 401 formulates a search query based upon consumer defined search parameters.

In step S404, MQL interface 401 transfers the search query to database 402.

In step S405, the process searches for music based upon the consumer defined search parameters. The consumer search parameters define certain feature vectors that define music attributes. A similarity analysis is performed to find music similar to music with the feature vectors defined by the music search parameters. One method of performing such a similarity analysis is described in U.S. Patent Application, Serial No. 09/533,045, Attorney docket no. M-8292 US, entitled, "METHOD FOR CREATING A DATABASE FOR COMPARING MUSIC ATTRIBUTES", filed on March 22, 2000, assigned to the assignee herein and incorporated herein by reference in its entirety. Based upon the similarity analysis, database 402 provides a list of music samples to MQL interface 402.

In step S406, MQL interface 402 provides the list of music samples to the consumer. The list of music samples may be provided to the consumer via UI 400 if the consumer is at a retail store. If the consumer is shopping on line, the list of music samples may be provided via UI 400 or via email. Also, audio samples may be provided on a portable storage media, for example, a DVD, which can store audio samples and a browser that, may include UI 400.

In step S407, the process determines if consumer want to listen to any particular music from the sample list. If the consumer wants to listen to any particular sample, then in step S408, music samples are provided to consumer and the consumer may be asked if the consumer wants to purchase sampled music. If the consumer wants to purchase any particular music then the sale transaction is completed in step S409. If the consumer is in a retail store, the consumer may pay by cash, check or credit card. A consumer shopping on line may pay by credit or debit card or other similar means.

Any consumer purchases via UI 400 or the system under the present invention are tracked and stored in central database 402. The process flow for tracking such purchases are described below.

After the sale transaction is completed in step S409 or if the consumer does not purchase after step S408, in step S410, the consumer is asked if the consumer wants to listen to music similar to that provided in step S407. If the consumer wants to sample similar music, the process goes back to step S405.

5 If the consumer does not want to sample similar music, the consumer is asked in step S411, if the consumer wants different music. If the consumer wants different music, then the process moves back to step S402. If the consumer does not want different music, the process stops in step S414.

10 If the consumer does not want to sample music in step S407, then in step S412 the consumer is asked if the consumer wants to buy music without sampling. If the consumer wants to purchase music, the transaction is completed in step S409. If the consumer does not want to purchase music, the consumer is asked in step S413, if the consumer wants to conduct another search for more music. If the consumer wants to search for more music the process moves to step S402.

15 If the consumer does not want to start another search, then the process stops at step S414.

Figure 4D is a process flow diagram for acquiring consumer input.

In step S4001, UI400 is provided to consumer. The consumer maybe provided UI400 on computing system 10.

20 In step S4002, determine if consumer is a repeat customer. This maybe determined by tracking consumer identification number.

In step S4003, determine if consumer wants to use a previous music search parameters.

In step S4004, if consumer wants to use a previous search, the process proceeds to step S403 (Fig 4B).

If the consumer wants a new search, then in step S4005, the process moves to step S402,

25 Fig. 4B.

Figure 5A is a flow diagram of process steps for tracking user purchases through UI 400.

In step S500, UI 400 is provided to a user. Generally, such UI 400 is like a browser running on computer 10. Examples of UI 400 are provided in Figures 4C1, 4C2 and 4C3.

In step S501, user searches for particular music using UI 400 and decides to purchase some music. If the user is at a store then a purchase ticket (printed or electronic) is issued to the user. If the user is buying online, a set of alphanumeric characters (transaction identification number) may be provided to the user.

In step S502, user purchases selected music with the ticket and/or transaction identification number.

In step S503, the sale through the tickets is categorized as a UI 400 sale. Such transaction records are then stored in a database, locally or remotely.

Figure 5B is a flow diagram of process steps of tracking user purchases with user queries, while using UI 400.

In step S5000, a user is provided UI 400. Generally, such UI 400 is like a browser running on computer 10. Examples of UI 400 are provided in Figures 4C1, 4C2 and 4C3.

In step S5001, a user inputs search queries. Such user queries are stored in a database locally or remotely (central database 402).

In step S5002, if the user purchases any music on a particular query, then the purchase of that music is stored, and is attributed to UI 400. For example, if a user purchases a music title X within Y minutes of generating a query, then the sale of title X is categorized as a UI 400 sale.

One advantage of the present invention is that, a retail store, brick and mortar or On-line can provide a tool to consumers for efficiently searching for music based upon music content.

Although the present invention has been described with reference to specific embodiments, these embodiments are illustrative only and not limiting. Many other applications

[illegible]